

CLAIMS

What is claimed is:

1. A miniature regulated gas supply system for distributing highly pressurized gas at a desired pressure, said system comprising:

a body defining a gas reservoir and a gas outlet, said gas reservoir containing a pressurized gas; and

a regulating assembly positioned in said body between said gas reservoir and said gas outlet, said regulating assembly controlling the pressure of the gas dispersed.

2. The regulated gas supply system as defined in claim 1 wherein said regulator assembly comprises:

a piston chamber defined in said body, said piston chamber having

a uppermost surface;

a seat opposing said uppermost surface; and

a chamber wall between said uppermost surface and said seat;

a piston slidably positioned in said piston chamber, said piston having

a piston flange engaging said chamber wall; and

a piston channel traversing said piston;

a spring between said piston flange and said seat, where said spring urges said piston flange away from said seat.

3. The regulated gas supply system as defined in claim 2 further comprising:

a secondary chamber;

a central channel traversing said piston;

wherein said piston includes a piston extension having a first end and a piston body having a second end, said central channel extending from said first end of said piston extension to said second end of said piston body;

wherein said piston extension slidably engages said secondary chamber.

4. The regulated gas supply system of claim 1 further comprising a vent aperture through said body, said vent aperture proximate said spring.

5. A method for controlling the pressure of gas provided from a regulated gas supply system comprising the steps of:

a) providing a body defining a gas reservoir and a piston chamber, said gas reservoir connected to said piston chamber by a channel, said piston chamber having an uppermost surface, a seat, and a chamber wall connecting said uppermost surface with said seat;

b) providing a piston in said piston chamber, said piston having a first end, a second end, and a piston flange, said piston flange contacting said chamber wall;

c) urging said piston away from said seat with a spring;

d) releasing gas from said gas reservoir into said piston chamber, said gas flowing through a piston channel through said piston; and

e) exerting said gas from said body through a gas outlet.

6. The method as described in claim 5 wherein after step e) further comprising the steps of:

applying a pressurized force on said piston flange opposite said spring; and

forcing said piston into contact with said seat of said piston chamber to obstruct the flow of said gas through said piston channel.

7. The method as described in claim 5 further comprising the steps of:

providing a secondary chamber;

providing a central channel traversing said piston from a first end of said piston to a second end of said piston;

engaging said secondary chamber with a first end of said piston; and

distributing gas through said central channel into said secondary chamber to balance said piston.

8. A discrete gas regulator for distributing highly pressurized gas at a desired pressure, said regulator comprising:

a cartridge defining a high-pressure gas reservoir and a gas outlet for dispersing gas at a desired pressure; and

a regulating assembly positioned within said cartridge between said gas reservoir and said gas outlet, said regulating assembly controlling the pressure of the gas dispersed through said gas outlet from said gas reservoir.

9. The discrete gas regulator as defined in claim 8 wherein said regulator assembly comprises:

a piston chamber defined in said body, said piston chamber having

a uppermost surface;

a seat opposing said uppermost surface; and

a chamber wall between said uppermost surface and said seat;

a piston slidably positioned in said piston chamber, said piston having a piston flange engaging said chamber wall and a piston channel traversing said piston; and

a spring between said piston flange and said seat, where said spring urges said piston flange away from said seat.

10. The discrete gas regulator as defined in claim 9 further comprising:

a secondary chamber;

a central channel traversing said piston;

wherein said piston includes a piston body and a piston extension, said central channel traversing said piston from an edge of said piston body to an edge of said piston extension;

wherein said piston extension slidably engages said secondary chamber.

11. The discrete gas regulator of claim 8 further comprising:

a vent traversing said cartridge;

wherein said cartridge has an outer periphery, and said vent extends from said outer periphery to said piston chamber proximate said spring.